## Claims

- 1. Carrier system for the cell-specific, intracellular enrichment of at least one pharmacologically active substance, characterized in that said carrier system is present in the form of nanoparticles based on protein, preferably based on gelatine and/or serum albumin, particularly preferably based on human serum albumin, and that it has structures that are coupled by means of reactive groups, said structures enabling a cell-specific attachment and cellular absorption of the nanoparticles.
- 2. Carrier system according to claim 1, characterised in that the reactive group is an amino, thiol, carboxyl group, or an avidin derivative.
- 3. Carrier system according to claim 1 or 2, characterised in that the coupled structure is an antibody.
- 4. Carrier system according to claim 3, characterised in that the antibody is a monoclonal antibody.
- 5. Carrier system according to any one of the preceding claims, characterised in that it additionally comprises a pharmaceutically active substance that is bound to the carrier system by means of the reactive groups by adsorption, incorporation or covalent or complexing bonds.
- 6. Use of a carrier system according to any one of the preceding claims for producing a medicament for enrichment of a pharmaceutically active substance to/in specific cells.

- 7. Method for producing a carrier system in the form of protein-based nanoparticles for the cell-specific enrichment of at least one pharmacologically active substance, characterised in that it comprises the following steps:
  - Desolvating an aqueous protein solution,
  - stabilising the nanoparticles formed by the desolvation, by crosslinking,
  - converting part of the functional groups on the surface of the stabilised nanoparticles to reactive thiol groups,
  - covalently attaching functional proteins, preferably avidin, by means of bifunctional spacer molecules,
  - if required, biotinylating the antibody,
  - loading the avidin-modified nanoparticles with the biotinylated antibody,
  - loading the avidin-modified nanoparticles with a biotinylated and pharmaceutically or biologically active substance.
- 8. Method according to claim 7, characterised in that the protein base is gelatine and/or serum albumin, preferably human serum albumin.
- 9. Method according to claim 7 or 8, characterised in that the desolvation is carried out by stirring and addition of a water-miscible non-solvent for proteins, or by salting-out.
- 10. Method according to claim 9, characterised in that the water-miscible non-solvent for proteins is selected from the group comprising ethanol, methanol, isopropanol and acetone.

- 11. Method according to any one of claims 7 to 10, characterised in that thermal processes or bifunctional aldehydes or formaldehyde are/is utilised for stabilising the nanoparticles.
- 12. Method according to claim 11, characterised in that glutaraldehyde is used as bifunctional aldehyde.
- 13. Method according to any one of claims 7 to 12, characterised in that as the thiol group-modifying agent a substance is used that is selected from the group comprising 2-iminothiolane, a combination of 1-ethyl-3-(3-dimethyl-aminopropyl)carbodiimide and cysteine, or a combination of 1-ethyl-3-(3-dimethylaminopropyl)-carbodiimide and cystaminium dichloride as well as dithiotreitol.
- 14. Method according to any one of claims 7 to 13, characterised in that as bifunctional spacer molecule a substance is used that is selected from the group comprising m-mal-eimidobenzoyl-N-hydroxysulfosuccinimide ester, sulfosuccinimidyl-4-[N-maleimido-methyl]cyclohexane-1-carboxylate, sulfosuccinimidyl-2-[m-azido-o-nitrobenzamido]-ethyl-1,3'dithiopropionate, dimethyl-3,3'-dithiobispropionimidate-dihydrochloride and 3,3'-dithiobis[sulfo-succinimidylpropionate].